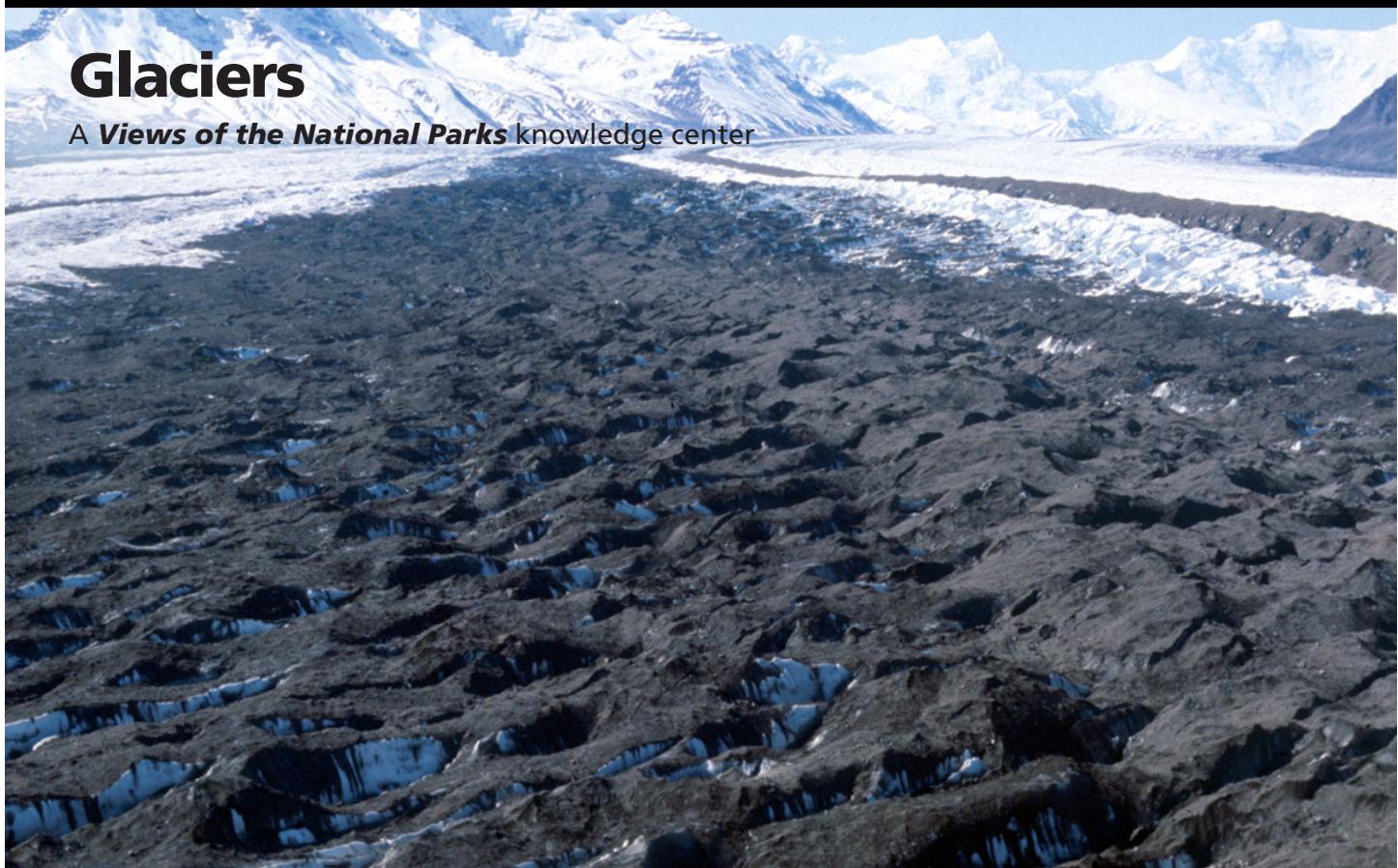




Glaciers

A *Views of the National Parks* knowledge center



Glaciers are powerful sculptors of the natural landscape. These flowing bodies of ice can carve wide valleys, transport massive volumes of rock debris, and create large moraines. They truly are one of nature's great landscape architects.

This knowledge center delves into the basic questions of what glaciers are, where they are found, how they form, and how they move. You will also discover the types and parts of glaciers. Once these basics are mastered, the knowledge center examines ice ages, the different types of landforms that may result from glaciation, and how scientists monitor glaciers. Throughout the knowledge center, examples are shown from our national parks.

National parks are also highlighted as case studies to illustrate how glaciers have created the park landscape and how different parks provide excellent examples of the various features of glaciation.

Features

This knowledge center provides basic information on glaciers, glacial geomorphology, and monitoring protocols for glaciers.

• Introduction

This section explores the basics about glaciers: what they are, where they are, how they form, how they move, different types of glaciers, and the parts of a glacier.

• Ice ages

This section explores past climate changes that have resulted in worldwide glaciation. It also provides an introduction to the meaning and causes of climate changes.

• Nature's landscape architects

This section explores how glaciers can be mighty sculptors of landscapes and illustrates many of the features glaciers create.

• Monitoring glaciers

This section addresses the benefits and hazards of glaciers and why monitoring is important. It also explores methods used to monitor glaciers with special emphasis on studies in national parks.

Discover glaciers in this interactive knowledge center. You'll learn about medial moraines, such as this one on Nabesna glacier in Wrangell-St. Elias National Park and Preserve in Alaska. (NPS Photo)

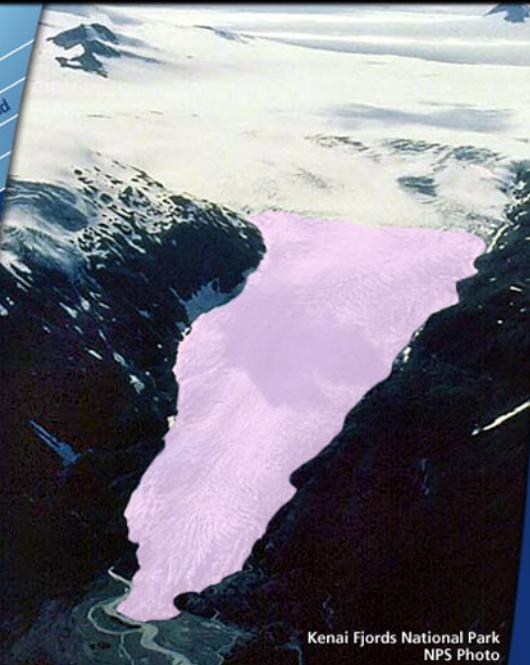
...glaciers have sculpted mountains and carved out valleys, and they continue to flow and shape the landscape in many places today.

— National Snow and Ice Data Center
<http://nsidc.org/glaciers/information.html>

Learn about the different parts of a glacier, and how a glacier's budget of snow accumulation and loss determines whether it advances or retreats.

Glaciers

Introduction Ice Ages Architects Monitoring National Parks Challenge



Kenai Fjords National Park
NPS Photo

What Glaciers Are
Where Glaciers Are Found
Types of Glaciers
How Glaciers Form
Parts of a Glacier
How Glaciers Move

Parts of a glacier

The parts of a glacier are tied to its glacial budget. Yes, glaciers believe wholeheartedly in balanced budgets, unlike many modern institutions. In the case of a glacier, income is snow, and being "in the red" is contrary to survival. Expenditures equate to the loss of snow (and the ice made from snow) which are disposed of through ablation. Select a part below to learn more about [glaciers](#).

- Accumulation Zone
- Firm Line
- Equilibrium Line
- Ablation Zone
- Terminus
- Bed

That part of a glacier's surface over which ablation (wastage) exceeds accumulation each year.

- **Challenge your understanding**

This section is devoted to seeing how well you understand glaciers. It also provides teaching standards, class exercises, and ideas for bringing glaciers into the classroom.

Uses

There are many different types of glaciers and many highly detailed classification systems, but glaciers can most easily be differentiated on the basis of topography and temperature. Glaciers are either unconstrained by topography, or the topography actually constrains the glacier.

— Glaciers knowledge center
On the different types of glaciers

Teaching Standards

- **Standard A - Scientific Inquiry**

Students can follow a series of experiments conducted about glacial movement.

- **Standard E – Science and Technology**

Students use an interactive computer program to access information on glaciers.

Partners

This knowledge center was developed with the help of the Geologic Resources Division (GRD) of the National Park Service. The Natural Resource Program Center - Office of Education and Out - reach and GRD would like to express special thanks to Katie KellerLynn for her dedication to working on this knowledge center.

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